

doi: 10.13241/j.cnki.pmb.2017.14.034

腹腔镜胆囊切除术对急性化脓性胆囊炎患者血清 SOD, MDA 及肝功能的影响 *

孙少华 沈 丰[△] 周文波 吴红伟 胡洪生

(湖北医药学院附属东风医院 肝胆胰甲状腺外科 湖北 十堰 442000)

摘要 目的:探讨腹腔镜胆囊切除术治疗急性化脓性胆囊炎的疗效及对患者血清超氧化物歧化酶(SOD)、丙二醛(MDA)及肝功能的影响。**方法:**选择2014年9月至2016年9月我院接诊的92例急性化脓性胆囊炎患者,随机分为观察组(n=46)和对照组(n=46),对照组使用传统开腹式胆囊切除术,观察组使用腹腔镜下胆囊切除术。观察并比较两组患者的术中出血量、术后引流量、手术时间、术后排气时间及住院时间,治疗前后丙氨酸氨基转移酶(ALT)、天门冬氨酸氨基转移酶(AST)、总胆红素(TBIL)、超氧化物歧化酶(SOD)及丙二醛(MDA)水平,以及术后并发症的发生情况。**结果:**观察组术中出血量、术后引流量少于对照组,手术时间、术后排气时间、排便时间、住院时间均比对照组短($P<0.05$);手术后,观察组丙氨酸氨基转移酶(ALT)、天门冬氨酸氨基转移酶(AST)、总胆红素(TBIL)水平均比对照组低($P<0.05$);观察组超氧化物歧化酶(SOD)水平高于对照组,丙二醛(MDA)水平低于对照组($P<0.05$);观察组术后并发症总发生率低于对照组($P<0.05$)。**结论:**腹腔镜胆囊切除术治疗急性化脓性胆囊炎的效果显著,对患者肝功能损伤较小,术后并发症少,值得临床应用推广。

关键词:急性化脓性胆囊炎;胆囊切除术;腹腔镜;肝功能;应激反应

中图分类号:R657.4 **文献标识码:**A **文章编号:**1673-6273(2017)14-2736-04

Effects of Laparoscope Cholecystectomy on Serum Levels of SOD and MDA and Liver Functions of Patients with Acute Suppurative Cholecystitis*

SUN Shao-hua, SHEN Feng[△], ZHOU Wen-bo, WU Hong-wei, HU Hong-sheng

(Hepatic and biliary pancreatic surgery, Dongfeng hospital, Hubei Medical College, Shiyan, Hubei, 442000, China)

ABSTRACT Objective: To study the effects of laparoscope cholecystectomy on serum levels of superoxide dismutase (SOD) and malondialdehyde (MDA) and liver functions of patients with acute suppurative cholecystitis and its curative effects. **Methods:** 92 patients with acute suppurative cholecystitis who were treated in our hospital from September 2014 to September 2016 were selected and randomly divided into the observation group (n=46) and the control group (n=46). The patients in the control group were treated with the conventional cholecystectomy, while the patients in the observation group were treated with laparoscope cholecystectomy. Then the blood loss, the operation time, postoperative drainage volume, the exhaust time and hospitalization, the serum levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), total bilirubin (TBIL), superoxide dismutase (SOD) and malondialdehyde (MDA) and the complications were observed and compared between the two groups before and after the operation. **Results:** The blood loss and postoperative drainage volume in the observation group were lower than those of the control group, and the the operation time, postoperative exhaust time, defecation time and hospitalization were shorter than those of the control group ($P<0.05$); After the operation, the serum levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST) and total bilirubin (TBIL) in the observation group were lower than those of the control group ($P<0.05$); After the operation, the serum levels of SOD in the observation group was higher than that of the control group, while the MDA was lower ($P<0.05$); The incidence of postoperative complications in the observation group was lower than that of the control group ($P<0.05$). **Conclusion:** Laparoscope cholecystectomy has obvious clinical effects on the treatment of acute suppurative cholecystitis, with less damage to liver functions and lower incidence of postoperative complications, which is worthy of clinical application.

Key words: Acute suppurative cholecystitis; Cholecystectomy; Laparoscope; Liver function; Stress response

Chinese Library Classification(CLC): R657.4 **Document code:** A

Article ID: 1673-6273(2017)14-2736-04

前言

急性化脓性胆囊炎是由于单纯的胆囊炎未得到及时治疗,

* 基金项目:湖北省自然科学基金项目(2005ABA161)

作者简介:孙少华(1978-),男,硕士,主治医师,从事肝胆胰、甲状腺外科方面的工作,电话:18607280138

[△] 通讯作者:沈丰(1979-),男,硕士,主治医师,从事肝胆胰、甲状腺外科方面的工作

(收稿日期:2016-12-05 接受日期:2016-12-28)

致使炎症病变发展,并逐渐对胆囊壁全层造成累及,白细胞呈弥漫性浸润状态;多表现为胆囊受到胆囊管的堵塞而明显增加,若得不到及时有效的治疗,极易危及生命^[1,2]。在目前临床上切除胆囊的方式中,腹腔镜胆囊切除术已成为“金标准”术式,但在急性化脓性胆囊炎中,由于组织出现严重水肿、解剖结构不清晰、手术操作较难,致使中途转为开腹式的情况较多,并且容易损伤胆道,固很长一段时间被视为禁忌证或相对禁忌证^[3]。近年来,随着腹腔镜技术的提高以及手术医师临床经验的不断丰富,腹腔镜胆囊切除术已日趋成熟,在国外大多数发达国家已逐渐开始应用^[4,5]。本次研究将腹腔镜胆囊切除术在急性化脓性胆囊炎患者中予以应用,为临床治疗提供参考。

1 资料与方法

1.1 一般资料

我院接诊的92例急性化脓性胆囊炎患者作为研究对象。纳入标准:①符合化脓性胆囊炎诊断标准^[6],并通过腹部B超确诊,胆囊大小 ≥ 10 cm,胆囊壁厚度 ≥ 0.5 cm;②在48 h内,腹部伴随压痛反跳痛,上腹部疼痛明显,并存在明显腹膜刺激征;③年龄 ≤ 65 岁;④同意参与此次研究。排除标准:①胆总管结石、胰腺炎;②代谢性、免疫类疾病,或近3个月内有免疫/激素类药物服用史;③重要器官存在器质性病变。通过随机数表法分为观察组和对照组,各46例。观察组男22例,女24例,年龄34~63岁,平均 (46.84 ± 2.41) 岁,发病至就诊时间1~7 d,平均 (4.07 ± 0.46) d;对照组男21例,女25例,年龄32~64岁,平均 (46.69 ± 2.50) 岁,发病至就诊时间1~8 d,平均 (4.13 ± 0.41) d。本次研究已在我院伦理委员会批准下实施,两组患者在性别、年龄、发病至就诊时间上无显著差异($P > 0.05$)。

1.2 方法

给予对照组传统开腹式胆囊切除术。给予观察组腹腔镜下

胆囊切除术:患者取头高脚低、左斜卧位,使用四孔法建立气腹,压力控制在13 mmHg;剑突下方放置10 mm Trocar,作为主操作孔;在肋缘下3 mm和右锁骨中线连接点、右腋中线和腋前线之间脐上水平连点处,分别作切口(5 mm),作为副操作孔;充分暴露胆囊三角区,借助组织分界张力,分离胆囊、血管及周边组织;使用丝线结扎的方式,断离胆囊动脉、胆囊管,随后剪断;在腹部其他组织中,分离出胆囊,并切除;生理盐水清洗腹腔,缝合后,常规留置引流管。

1.3 观察指标

1.3.1 手术情况 记录两组患者术中出血量、术后引流量、手术时间、术后排气时间、术后排便时间、住院时间。

1.3.2 肝功能检查 丙氨酸氨基转移酶(ALT)、天门冬氨酸氨基转移酶(AST)、总胆红素(TBIL)的检测使用OLYMPUS AU5400全自动生化分析仪,ALT、AST使用速率法检测,TBIL使用钒酸酸化法。

1.3.3 应激指标检测 超氧化物歧化酶(SOD)的检测使用黄嘌呤氧化酶法,丙二醛(MDA)使用硫代巴比妥酸比色法,仪器使用上海第三分析仪器厂生产的721分光光度计;记录术后并发症。

1.4 统计学分析

数据用SPSS18.0软件包进行处理,计量资料用均数 $\pm$ 标准差($\bar{x} \pm s$)表示,并采用t检验,计数资料的比较采用 χ^2 检验, $P < 0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组患者手术情况比较

观察组术中出血量、术后引流量比对照组少,手术时间、术后排气时间、排便时间、住院时间均比对照组短($P < 0.05$),见表1。

表1 两组患者手术情况比较($\bar{x} \pm s$)

Table 1 Comparison of operation situations between two groups($\bar{x} \pm s$)

Groups	Blood loss (ml)	Drainage volume (mL)	Operation time (min)	Exhaust time (h)	Defecation time (h)	Hospitalization (d)
Observation group (n=46)	65.83 $\pm$ 4.71*	28.59 $\pm$ 2.78*	52.31 $\pm$ 3.41*	21.32 $\pm$ 2.71*	34.08 $\pm$ 3.53*	4.21 $\pm$ 0.58*
Control group (n=46)	134.82 $\pm$ 7.35	54.93 $\pm$ 4.54	73.40 $\pm$ 6.72	27.84 $\pm$ 3.04	38.46 $\pm$ 4.20	5.93 $\pm$ 0.79

Note: compared with the control group, * $P < 0.05$.

2.2 两组患者手术前后肝功能比较

手术前,两组患者肝功能指标无显著差异($P > 0.05$);手术

后,两组患者ALT、AST、TBIL结果均出现上升($P < 0.05$);但观察组ALT、AST、TBIL水平均低于对照组($P < 0.05$),见表2。

表2 两组患者手术前后肝功能比较($\bar{x} \pm s$)

Table 2 Comparison of liver functions between two groups before and after operation

Groups		ALT (IU/L)	AST (IU/L)	TBIL (μ mol/L)
Observation group (n=46)	Before operation	23.43 $\pm$ 3.08	24.32 $\pm$ 3.13	13.45 $\pm$ 1.62
	After operation	38.95 $\pm$ 5.78**	40.76 $\pm$ 5.81**	18.23 $\pm$ 2.13**
Control group (n=46)	Before operation	23.56 $\pm$ 3.01	24.19 $\pm$ 3.23	14.29 $\pm$ 1.81
	After operation	56.41 $\pm$ 6.32*	54.62 $\pm$ 6.74*	24.86 $\pm$ 2.69*

Note: compared with before operation, * $P < 0.05$; compared with control group after operation, ** $P < 0.05$.

2.3 两组患者手术前后 SOD、MDA 水平比较

手术前,两组患者 SOD、MDA 水平无显著差异($P>0.05$),两组患者手术后 SOD、MDA 水平和手术前比较均具有显著差

异($P<0.05$),观察组 SOD 水平高于对照组,MDA 水平低于对照组($P<0.05$),见表 3。

表 3 两组患者手术前后 SOD、MDA 水平比较($\bar{x}\pm s$)

Table 3 Comparison of the levels of SOD and MDA between two groups before and after operation($\bar{x}\pm s$)

Groups		SOD(U/mL)	MDA(mmol/L)
Observation group (n=46)	Before operation	77.98± 9.94	6.48± 0.79
	After operation	70.34± 9.34**	7.20± 0.98**
Control group (n=46)	Before operation	78.12± 9.86	6.52± 0.74
	After operation	61.23± 8.68*	9.69± 1.03*

Note: compared with before operation, * $P<0.05$; compared with control group after operation, ** $P<0.05$.

2.4 两组患者并发症比较

观察组感染、出血、胆漏、胆管损伤并发症总发生率低于对

照组少($P<0.05$),给予抗感染、止血、缝合胆管后等措施后均得到缓解。见表 4。

表 4 两组患者并发症比较(例,%)

Table 4 Comparison of the complication between two groups(n, %)

Groups	Infection	Hemorrhage	Bile leakage	Bile duct injury	Total incidence rate
Observation group (n=46)	1(2.17)	1(2.17)	1(2.17)	0(0.00)	3(6.52)
Control group (n=46)	4(8.69)	3(6.52)	2(4.35)	1(2.17)	10(21.74)

Note: compared with control group, * $P<0.05$.

3 讨论

急性化脓性胆囊炎主要由胆囊炎发展而成,临床症状包括高热、腹部剧烈疼痛等,病情发展快^[7,8]。目前临床主要采用药物和手术两种方法治疗急性化脓性胆囊炎,但传统开腹式胆囊切除术对患者损伤较大,不利于术后恢复^[9]。随着腹腔镜技术在医学界的不断进步,在急性化脓性胆囊炎患者中行腹腔镜胆囊切除术的方式也有所应用,但仍有部分研究提出,在手术过程中所建立的气腹会压迫腹腔内脏器,可造成肝脏再缺血、再灌注模型;且肝脏在受到缺血再灌注后,增加氧自由基含量,随后所形成的氧化应激反应可直接损伤肝细胞,并可促进中性粒细胞、血小板等的聚集和粘附,影响微血管循环,同时还可促经血小板激活因子、白三烯、内毒素等物质的释放,损伤肝脏组织^[10,11]。

应激反应是指遭受到强烈刺激后,身体机能所产生的一种自我保护反应,主要通过对丘脑-垂体-肾上腺轴功能造成刺激,并促进糖皮质激素、肾上腺皮质激素的分泌所形成,过度的应激反应,则可能导致组织器官缺血缺氧性损伤^[12,13]。MDA 作为脂质过氧化反应的终产物,可对氧自由基水平进行反应;其可和核酸、脂蛋白等相互交联,形成细胞毒性,对肝细胞造成直接损伤;而新产生的氧自由基则继续脂质过氧化反应,进一步引发干细胞的凋亡^[14]。SOD 是体内重要的抗氧化酶,可使自由基得到有效的清除,并减轻其对细胞所形成的损伤;在外伤或者外科手术时,其表达水平会出现下降,和再灌注损伤、脂质过氧化之间关系密切^[15,16]。本研究结果显示,两组患者术后

MDA、SOD 水平均出现改变,但腹腔镜胆囊切除术患者术后 SOD 表达较高,MDA 表达较低,显示出在该种方式下,对患者产生的应激反应较低。张国平等^[17]将腹腔镜胆囊切除术应用在急性结石性胆囊炎中的结果中也指出,腹腔镜式下对患者造成的应激反应较低,有利于改善预后。

ALT、AST、TBIL 都是在肝功能检测中十分敏感的指标^[18,19]。其中 ALT、AST 主要在肝细胞中存在,在正常情况下表达较低,在肝细胞遭受到损伤时,ALT、AST 会在人血中释放,表达升高,在临床上多用于对肝细胞的损伤程度进行翻译;血清 TBIL 主要是对肝脏的分泌、排泄功能进行反应,当肝脏功能发生异常时,TBIL 难以通过肝脏代谢,滞留在血清中,致使其含量升高^[20]。本次研究显示出,两组患者在手术后 ALT、AST、TBIL 水平均出现上升,显示出胆囊切除术的确损伤患者肝功能,但腹腔镜胆囊切除术的患者的表达较开腹式的患者明显较低,分析原因可能是由于在腹腔镜式下,患者所受到的应激反应较低,对肝功能造成的影响较小。此外,在本次研究结果中显示,腹腔镜胆囊切除术的患者手术时间、术中出血量、术后引流时间、排便时间均比开腹式更短,显示出该方式对患者的胃肠功能影响较小,术后恢复快。并且在术后并发症发生率上,腹腔镜胆囊切除术患者仅有 6.52%,而开腹式患者有 21.74%,显示出腹腔镜式较开腹式比较更具有优势,安全性更高。

综上所述,将腹腔镜胆囊切除术应用于急性化脓性胆囊炎患者中效果显著,该方式造成的应激反应低,对肝功能损伤较小,术后并发症少,利于术后恢复,值得应用推广。

参 考 文 献(References)

- [1] Gadzhiev DN, Tagiev EG, Bagirov GS, et al. Serum and bile cytokines dynamics in patients with non-tumoral obstructive jaundice and suppurative cholangitis[J]. Khirurgiia (Mosk), 2016, 16(4): 15-20
- [2] Zhang C. Laparoscopic cholecystectomy in the treatment of elderly patients with acute suppurative cholecystitis in 127 cases [J]. Chinese Journal of Current Advances in General Surgery, 2016, 19 (07): 586-588
- [3] Peng C, Ling Y, Ma C, et al. Safety Outcomes of NOTES Cholecystectomy Versus Laparoscopic Cholecystectomy: A Systematic Review and Meta-Analysis [J]. Surg Laparosc Endosc Percutan Tech, 2016, 26(5): 347-353
- [4] Yan YE, Li F, Gai YH, et al. An innovative procedure of laparoscope combined with endoscopy for gastrointestinal stromal tumor resection and cholecystectomy: A case report and literature review[J]. Exp Ther Med, 2016, 11(4): 1393-1398
- [5] Matsui Y, Ryota H, Sakaguchi T, et al. Comparison of a flexible-tip laparoscope with a rigid straight laparoscope for single-incision laparoscopic cholecystectomy[J]. Am Surg, 2014, 80(12): 1245-1249
- [6] 廖重五, 马苏, 宋涛, 等. 腹腔镜胆囊摘除术与传统开腹手术治疗急性胆囊炎的临床疗效对比 [J]. 现代生物医学进展, 2016, 16(26): 5135-5137, 5018
- Liao Chong-wu, Ma Su, Song Tao, et al. Clinical Curative Effect of Laparoscopic Gallbladder Excision Compared with Traditional Laparotomy of Acute Cholecystitis [J]. Progress in Modern Biomedicine, 2016, 16(26): 5135-5137, 5018
- [7] Baron TH, Grimm IS, Gerber DA. Liver transplantation after endoscopic ultrasound-guided cholecystoduodenostomy for acute cholecystitis: A note of caution [J]. Liver Transpl, 2015, 21 (10): 1322-1323
- [8] Li Z. Clinical analysis of laparoscopic treatment of acute suppurative cholecystitis [J]. Chinese Journal of Modern Drug Application, 2016, 10(01): 59-60
- [9] Peters R, Kolderman S, Peters B, et al. Percutaneous cholecystostomy: single centre experience in 111 patients with an acute cholecystitis[J]. JBR-BTR, 2014, 97(4): 197-201
- [10] Lima GJ, Leite RF, Abras GM, et al. Minilaparoscopy-assisted transumbilical laparoscopic cholecystectomy [J]. Rev Col Bras Cir, 2016, 43(3): 209-213
- [11] Bi BH, Li H, Li W, et al. Laparoscopic Cholecystectomy for Acute Suppurative Cholecystitis: a Report of 452 Cases [J]. Chinese Journal of Minimally Invasive Surgery, 2014, 14(10): 917-919+926
- [12] Qi Y, Yao X, Zhang B, et al. Comparison of recovery effect for sufentanil and remifentanil anesthesia with TCI in laparoscopic radical resection during colorectal cancer[J]. Oncol Lett, 2016, 11(5): 3361-3365
- [13] Jiang A, Chen LJ, Wang YX, et al. The Effects of Different Methods of Anaesthesia for Laparoscopic Radical Gastrectomy with Monitoring of Entropy[J]. Anticancer Res, 2016, 36(3): 1305-1308
- [14] Guesmi F, Tyagi AK, Bellamine H, et al. Antioxidant Machinery Related to Decreased MDA Generation by Thymus Algeriensis Essential Oil-induced Liver and Kidney Regeneration [J]. Biomed Environ Sci, 2016, 29(9): 639-649
- [15] Péter I, Jagicza A, Ajtay Z, et al. Psoriasis and oxidative stress[J]. Orv Hetil, 2016, 157(45): 1781-1785
- [16] Takeda S, Toda T, Nakamura K. Effects of Medium Molecular Weight Heparinyl Phenylalanine on Superoxide Dismutase Activity in Mice[J]. In Vivo, 2016, 30(6): 841-844
- [17] Zhang GP, WU Y, Yu LF. Effect of laparoscopic cholecystectomy on gastrointestinal function and stress response in patients with acute gallstone cholecystitis [J]. Zhejiang Journal of Traumatic Surgery, 2015, 20(4): 759-761
- [18] Zhao X, Shi XL, Zhang ZH, et al. Role of neutrophils in treatment of rats with D-galactosamine-induced acute liver failure with bone marrow mesenchymal stem cells[J]. Zhonghua Gan Zang Bing Za Zhi, 2016, 24(8): 601-607
- [19] Wu ZQ. The Meaning of Abdominal Laparoscopic Cholecystectomy in Patients With Liver Function Index [J]. China Continuing Medical Education, 2014, 6(08): 122-124
- [20] Xiong SL. Comparison between laparoscopic cholecystectomy and open cholecystectomy on liver function and immune function [J]. Journal of Regional Anatomy and Operative Surgery, 2014, 23 (04): 388-390
- (上接第 2720 页)
- [16] Le Chatton M, Wittemer C, Schweitzer T, et al. Is gonadotropin releasing hormone(GnRH)agonist trigger beneficial or deleterious?[J]. Gynecol Obstet Fertil, 2016, 44(7-8): 403-409
- [17] Hrzenjak A, Dieber-Rotheneder M, Moinfar F, et al. Molecular mechanisms of endometrial stromal sarcoma and undifferentiated endometrial sarcoma as premises for new therapeutic strategies [J]. Cancer Lett, 2014, 354(1): 21-27
- [18] Barry JA, Azizia MM, Hardiman PJ. Risk of endometrial, ovarian and breast cancer in women with polycystic ovary syndrome: a systematic review and meta-analysis [J]. Hum Reprod Update, 2014, 20 (5): 748-758
- [19] Committee on Gynecologic Practice, Society of Gynecologic Oncology. The American College of Obstetricians and Gynecologists Committee Opinion no.631.Endometrial intraepithelial neoplasia[J]. Obstet Gynecol, 2015, 125(5): 1272-1278
- [20] Allo G, Bernardini MQ, Wu RC, et al. ARID1A loss correlates with mismatch repair deficiency and intact p53 expression in high-grade endometrial carcinomas[J]. Mod Pathol, 2014, 27(2): 255-261